D H E C
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MEMORANDUM

TO: Milliken Chemical – Dewey Plant, Project File
SCD 069 314 045

Thru: David Scaturo, P.E., P.G., Manager
Corrective Action Engineering Section
Division of Waste Management
Bureau of Land and Waste Management

John Litton, P.E., Director
Division of Waste Management
Bureau of Land and Waste Management

From: Stephen Crowell, Environmental Engineer Associate
Corrective Action Engineering Section
Division of Waste Management
Bureau of Land and Waste Management

Date: August 29, 2002

RE: Environmental Indicator Event Codes (CA725/CA750)

I. PURPOSE OF MEMO

This memo is written to formalize Milliken's status in relation to the following RCRAInfo corrective action event codes

1) Human Exposures Controlled Determination (CA725)
2) Migration of Contaminated Groundwater Controlled (CA 750)

II. FACILITY SUMMARY

The Milliken Chemical – Dewey Plant has been in operation since 1963. It currently produces chemicals used in textile finishing, colorants, additives and resins. The plant is located in the Town of Inman, in Spartanburg County, on 260 acres. A RCRA Part B Permit was originally issued to this facility on September 28, 1990 for container storage, which was renewed in 1997. A HSWA Permit was issued at the same time for twenty-eight SWMUs and eight AOCs. Several interim measures have been performed by Milliken to remove source areas of contamination at the facility. The Inactive Landfill

(SWMU 21) was excavated, capped and certified closed in 2000. The Chemical Sewer Network (AOC G) was replaced with an entirely new double wall system in 2001. Certain areas of the old sewer were either excavated or capped. A Phase II RFI Report has been completed and further sampling is being conducted for the Eastern Drainage Area (AOC H).

This is the third EI evaluation conducted for the Milliken Chemical –Dewey Plant. The first evaluation was done in 1996 and resulted in a NO determination for both the CA725 and CA750 indicators. The second evaluation was done in 2000 as an internal document for departmental planning and the previous determination of NO for both CA725 and CA750 remained unchanged.

III. HUMAN EXPOSURES CONTROLLED DETERMINATION (CA725)

MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES

Groundwater – Releases from SWMU's and/or AOC's have resulted in groundwater contamination across the site. The groundwater contains concentrations of chlorinated solvents, primarily PCE and TCE. A groundwater extraction system is currently operating and discharging to the on-site wastewater treatment system.

Soil – Soil at the facility is contaminated with volatile organics and metals. All contaminated soils are on site and access to the facility is limited by fencing and gates. The facility has a permitting process for all soil excavations that must be approved by the environmental manager.

Air – Contamination from air emission is considered to be negligible. No contaminated soil or groundwater is exposed to the air at this time due to remedial efforts at AOC G (Chemical Sewer) and the groundwater extraction system. The wastewater treatment system utilizes a permitted air stripper as part of the treatment system.

Surface Water – Recent surface water samples from Lawson's Fork Creek taken during the Phase II RFI have shown only a single low-level positive result for SVOCs. The potential for human exposure is considered to be minimal at this time.

STATUS CODE RECOMMENDATION FOR CA725

This facility has implemented interim measures with regard to contaminated groundwater migration through installation and operation of groundwater extraction wells. The facility has restricted access due to locked gates and fencing. Contamination of surface water due to groundwater discharge is unknown but currently considered to be minimal at this time. Therefore, it is recommended that CA725 YE be entered in to the RCRAInfo system.

IV. MIGRATION OF CONTAMINATED GROUNDWATER CONTROLLED (CA750)

DISCUSSION OF CONTAMINATION AND STATUS OF GROUNDWATER

The groundwater at the Milliken site is primarily contaminated by chlorobenzene and trichloroethene and its associated daughter products. The source of these contaminants is not precisely known, but efforts have been made to remove suspected source areas. The plume is flowing towards Lawson's Fork Creek in both the saprolite and fractured bedrock aquifers. A groundwater remediation system, consisting of pumping wells, has been installed in the western portion of the plume. The eastern portion of the plume has only partially been delineated and the downgradient extent of the plume is still unknown. As a result, the contaminated groundwater has no barrier to flow off of the Milliken property.

STATUS CODE RECOMMENDATION FOR CA750

This facility has implemented a RFI program and a groundwater remediation system as a means of controlling the contaminated groundwater. This has only been successful in halting the flow of the western portion of the plume. The full extent of the migration of the plume in the eastern area of the site has not been discovered or controlled. Therefore, it is recommended that CA750 NO be entered into the RCRAInfo system.

SUMMARY OF FOLLOW-UP ACTIONS

CA750 – Further characterization and delineation of the groundwater plume in the eastern area of the facility is currently being planned. Following the results of the new sampling, an interim measures work plan will be submitted which will provide for hydraulic control of the plume. Control and delineation of the groundwater plume should be able to be achieved by the end of the 2003 fiscal year.

Attachments:
1. CA725: Human Exposures Controlled
2. CA750: Migration of Contaminated Groundwater Controlled
3. Previous EI evaluations

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS Event Code (CA725)
ATTACHMENT 1
DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS Code (CA725)
Current Human Exposures Under Control

Facility Name: ___Milliken Chemical – Dewey Plant_____
Facility Address: ___1440 Campton Road, Inman, SC 29349_____
Facility EPA ID #: ___SCD 069 314 045_____

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

__X__ If yes - check here and continue with #2 below,

____ If no - re-evaluate existing data, or

____ If data are not available skip to #6 and enter"IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table
Potential **Human Receptors** (Under Current Conditions)

"Contaminated" Media	**Residents**	**Workers**	**Day-Care**	**Construction**	**Trespassers**	**Recreation**	**Food**[3]
Groundwater	No	Yes	No	No			No
Air (indoors)	N/C	N/C	N/C				
Soil (surface)	N/C	N/C	N/C	N/C	N/C	N/C	N/C
Surface Water	N/C	N/C			N/C	N/C	N/C
Sediment	N/C	N/C			N/C	N/C	N/C
Soil (subsurface)				Yes			No
Air (outdoors)	N/C	N/C	N/C	N/C	N/C		

Instructions for Summary Exposure Pathway Evaluation Table:

1. For Media which are not "contaminated" as identified in #2, please strike-out specific Media, including Human Receptors' spaces, or enter "N/C" for not contaminated.

2. Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have assigned spaces in the above table. While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

__X__ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s): Groundwater – Maintence workers can turn off all pumping equipment before commencing work, discharges from the piping and treatment system are relatively inaccessible and not disturbed

Subsurface soil – Milliken has instituted a excavation permitting process for the entire plant area where all digging must be cleared through the environmental safety group. All excavation conducted in known contaminated areas will be monitored by safety personnel to ensure worker safety.

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

Current Human Exposures Under Control Interim Final 2/5/99
Environmental Indicator (EI) RCRIS Event Code (CA725)

6 Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

__X__ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Milliken Chemical – Dewey Plant facility, EPA ID # SCD 069 314 045, located at Inman, South Carolina under current and reasonably expected conditions. This determination will be re-evaluated when the State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by (signature) Stephen Crowell Date 8-28-02
Stephen Crowell
Environmental Engineer Associate

Supervisor (signature) David Scaturo Date 8-28-02[5]
David Scaturo, P.E., P.G.
Manager
South Carolina Department of Health and Environmental Control

Locations where References may be found:

South Carolina DHEC, Bureau of Land and Waste Management
8901 Farrow Road, Suite 109, Columbia, South Carolina 29210

Milliken Chemical – Dewey Plant, 1440 Campton Road, Inman, SC 29349

Contact telephone and e-mail numbers

Stephen Crowell, Environmental Engineer Associate
803-896-4183
crowelsr@dhec.state.sc.us

[5] **FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.**

2 Is **groundwater** known or reasonably suspected to be **"contaminated"**[6] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

__X__ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): Key Contaminants – Chlorinated organics, including chlorobenzene, trichloroethene and associated daughter products

Trichlorethene – levels range from ND to 32,000 ppb
Chlorobenzene – levels range from ND to 8,900 ppb
Cis-1,2,-dichloroethene – levels range from ND to 6,500 ppb
1,2-dichlorobenzene – levels range from ND to 9,800 ppb

6 "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

_____ If yes - continue after identifying potentially affected surface water bodies.

_____ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):_____

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[9])?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment,[10] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):_____
_____
_____
_____
_____
_____
_____

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9 Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

10 The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

Environmental Indicator (EI) RCRIS Event Code (CA750)

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

____ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the _____ _____facility , EPA ID # _____ , located at_____. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

__X__ NO - Unacceptable migration of contaminated groundwater is observed or expected.

____ IN - More information is needed to make a determination.

Completed by(signature) Stephen Crowell Date 8-28-02
Stephen Crowell
Environmental Engineer Associate

Supervisor (signature) David Scaturo Date 8-28-02
David Scaturo, P.E., P.G.
Manager
South Carolina Department of Health and Environmental Control

Locations where References may be found:

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Milliken Chemical – Dewey Plant, 1440 Campton Road. Inman, SC 29349

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Commissioner: Douglas E. Bryant

Board: John H. Burriss, Chairman
William M. Hull, Jr., MD, Vice Chairman
Roger Leaks, Jr., Secretary
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Promoting Health Protecting the Environment

JOAN Joan
KEN
Please ensure RCRIS entry
Joan

MEMORANDUM

TO: John T. Litton, P.E., Manager
Hazardous Waste Permitting Section
Bureau of Solid and Hazardous Waste Management

FROM: *H. Kenneth Johnson, Environmental Engineering Associate*
Hazardous Waste Permitting Section
Bureau of Solid and Hazardous Waste Management

SUBJ: Evaluation of *Milliken Chemical - Dewey Plant's* status under the RCRIS Corrective Action Environmental Indicator Event Codes (CA725 and CA750)
EPA I.D. Number: *SCD 069 314 045*

DATE: *July 11, 1996*

I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of *Milliken Chemical - Dewey Plant's* status in relation to the following RCRIS corrective action codes:

1) Human Exposures Controlled Determination (CA725),

2) Groundwater Releases Controlled Determination (CA750).

The applicability of these event codes adheres to the definitions and guidance provided by the Office of Solid Waste (OSW), United States Environmental Protection Agency - Washington, DC in the July 29, 1994, memorandum to the USEPA Regional Waste Management Division Directors.

The State of South Carolina became authorized, in January 1995, for implementing those portions of RCRA covered under the HSWA Corrective Action process. The recommendations provided in this document have been generated in cooperation with the USEPA Region IV staff through the use of EPA's current Environmental Indicator ranking system.

II. HUMAN EXPOSURES CONTROLLED DETERMINATION (CA725)

There are three (3) national status codes under CA725. These status codes are:

1) YE Yes, applicable as of this date.

2) NA Previous determination no longer applicable as of this data.

3) NC No control measures necessary.

The State of South Carolina, in conjunction with EPA Region IV, has also added a RCRIS status code to CA725 which tracks initial evaluations in which a determination is made that plausible human exposures to current contamination risks are not controlled. This status code is listed as "NO, not applicable as of this date." Use of the status code is only applicable during the first CA725 evaluation. Evaluations subsequent to the first evaluation will use the national status codes (i.e., YE, NA and NC) to explain the current status of exposure controls.

Note that the three national status codes for CA725 are based on the entire facility (i.e., the codes are not SWMU specific). Therefore, every area at the facility must meet the definition before a YE, NA or NC status code can be entered for CA725. Similarly, the status code NO is applicable if plausible human exposures are not controlled in any areas of the facility.

This particular CA725 evaluation is the *first* evaluation performed by SCDHEC for *Milliken Chemical - Dewey Plant*. Because assumptions have to be made as to whether or not human exposures to current media contamination are plausible and, if plausible, whether or not controls are in place to address these plausible exposures, this memo first examines each environmental media (i.e., soil, groundwater, surface water, air) at the entire facility including any offsite contamination emanating from the facility rather than from individual areas or releases. After this independent media by media examination is presented, a final recommendation is offered as to the proper CA725 status code for *Milliken Chemical - Dewey Plant*.

The following discussions, interpretations and conclusions on contamination and exposures at the facility are based on the following reference documents: *[RFI Report, dated March 1995].*

III. MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES

Based on all available information, air and surface water at Milliken Chemical - Dewey Plant do not appear to be impacted. Three surface water samples were collected from Lawsons Fork Creek in 1994 during Milliken's RCRA Facility Investigation. Chlorobenze was detected in only one sample at the method detection limit and this sample was collected upstream of the facility. Sediment samples taken from the creek bottom have been impacted by facility operations. All metals were detected at concentrations below US EPA Region III Risk-Based Residential Concentrations, however. Only barium was detected at a concentration exceeding its soil screening level (i.e. Soil Screening Guidance EPA/540/R-94/101).

Soils underlying Milliken's closed landfill (SWMU 21) have not been sampled, but based on groundwater quality from monitoring wells surrounding the landfill, soils are expected to be impacted. Soil contamination is present in the area downgradient of Milliken's process wastewater treatment plant (SWMUs 7, 7a, 7c, 7h). The concentration of metals detected in soil samples from borings installed three feet below grade exceed background concentrations. However, beryllium was the only metal detected whose concentration at one location (B-5) exceeded its US EPA Region III Risk-Based Residential Concentration. Soil contamination has also been detected adjacent to deteriorated sections of Milliken's chemical sewer network (AOC G). Volatile organic compounds, semi-volatile organic compounds, and metals have been detected in soils from borings installed adjacent to sections of the sewer that were determined to be in poor condition. Detected concentrations of volatile organic, semi-volatile organic, and metals constituents exceeded soil screening levels.

Groundwater is contaminated downgradient of Milliken's process wastewater treatment plant (SWMUs 7, 7a, 7c, 7h), and landfill (SWMU 21). Groundwater recovery wells have been operating downgradient of these units since 1988. The groundwater contaminant plume consists of volatile and semi-volatile organic constituents at concentrations above Safe Drinking Water Act Maximum Contaminant Limits (MCLs). Barium has also been detected at a concentration exceeding its federal MCL downgradient of the landfill (SWMU 21).

The concentration of total volatile and semi-volatile contaminants monitored in groundwater downgradient of Milliken's wastewater treatment plant and landfill are increasing. The concentrations of several organic contaminants monitored in deep bedrock wells in this area are also increasing. The existing groundwater recovery system does not exert hydraulic control over the full contaminant plume in this area and the contaminant plume within the saprolite is suspected to be migrating below Lawsons Fork Creek and offsite.

During groundwater investigations conducted during Milliken's RCRA Facility Investigation, an additional source of groundwater contamination was discovered east of the plant. The concentrations of volatile and semi-volatile organic constituents in groundwater from saprolite wells installed along a northeast to southwest trending fracture are the higest concentrations detected onsite. The source of this contamination may be one, or a combination, of the following:

a) releases from Milliken's above-ground tank farm;

b) releases from deteriorated sections of Milliken's chemical sewer network (AOC G) located east of the above-ground tank farm;

c) releases from a former wastewater discharge that was identified from historical photographs emptying into this drainage.

Milliken has not delineated the horizontal and vertical extent of groundwater contamination at their site but based on contaminant plume geochemistry, the plume from Milliken is believed to have migrated as much as 2,000 feet from the above-ground storage tank area to recovery wells operated by a neighboring industry. Further assessment of the horizontal and vertical extent of groundwater contamination east of the Milliken Comapany- Dewey Plant will be assessed in a second phase of Millikens RCRA Facility Investigation.

IV. STATUS CODE RECOMMENDATION FOR CA725:

Groundwater and soil contamination are known to exist at the Milliken Chemical - Dewey Plant facility. The groundwater contamination is suspected to have migrated off-site. As explained in Section III, because human exposures to contamination are not currently controlled for the soil and groundwater, it is recommended that CA725 NO be entered into RCRIS for this facility.

V. GROUNDWATER RELEASES CONTROLLED DETERMINATION (CA750)

There are three (3) status codes listed under CA750:

1) YE Yes, applicable as of this date.

2) NA Previous determination no longer applicable as of this date.

3) NR No releases to groundwater.

SCDHEC, in conjuction with EPA Region IV, has also added an additional status code which tracks the initial evaluations in which a determination is made that groundwater releases are not controlled. This status code is listed as "NO, not applicable as of this date." Use of the status code is only applicable in the first CA750 evaluation. Evaluations subsequent to the first evaluation will use the national status codes (i.e., YE, NA and NR) to explain the current status of groundwater control.

Note that the three national status codes for CA750 are designed to measure the adequacy of actively or passively controlling the physical movement of groundwater contaminated with hazardous constituents above relevant action levels. The point where the success or failure of controlling the migration of hazardous constituents is measured is termed the designated boundary (e.g., the facility boundary, a line upgradient of receptors, the leading edge of the plume as defined by levels above action levels or cleanup standards, etc.). Therefore, every contaminated area at the facility must meet the definition before these event/status codes can be entered. Similarly, the status code is applicable if contaminated groundwater is not controlled in any area(s) of the facility.

This evaluation for CA750 is the *first* formal evaluation performed for *Milliken Chemical - Dewey Plant*. Please note that CA750 is based on the adequate control of **all** contaminated groundwater at the facility.

The following discussions, interpretations and conclusions on contaminated groundwater at the facility are based on the following reference documents: *[RFI Report, dated March 1995]*.

VI. STATUS CODE RECOMMENDATION FOR CA750:

Based on data contained in the documents referenced in Section V and summarized in the groundwater portion of Section III, releases near SWMUs # 7, 7a, 7c, 7h, 21, and the chemical sewer network, above-ground tank farm, and/or former wastewater discharge east of the plant have contaminated groundwater at concentrations above relevant action levels. Although Milliken is operating a groundwater recovery system downgradient of the wastewater treatment system (SWMUs # 7, 7a, 7c, and 7h) and landfill (SWMU 21), the system is not effectively capturing the contaminant plume. The full horizontal and vertical extent of the plume emanating from the chemical sewer network, above-ground tank farm, and/or former wastewater discharge east of the plant has not been assessed. Because all groundwater contamination at or emanating from the Milliken facility is not controlled and this is the first evaluation at this facility, I recommend that CA750 NO be entered into RCRIS for Milliken- Dewey Plant.

Project Schedule for Meeting Environmental Indicators

I. Basic Information

Name and I.D. No.	Location	Date of Latest EI Memo	CA 725 Decision	CA 750 Decision
Milliken Chemical - Dewey Plant SCD 069 314 045	Inman, SC	7/11/96	NO	NO

II. Brief Facility Background

A RCRA Part B Permit was issued to this facility on September 28, 1990 for container storage, which was subsequently renewed in 1997. A HSWA Permit was issued at the same time for twenty-eight SWMU's and eight AOC's. A RCRA Facility Investigation (RFI) was required for four SWMU's (the wastewater treatment system and an inactive landfill) and three AOC's (Lawson's Fork Creek, the chemical sewer network and the eastern drainage area). Interim Measures have been implemented for SWMU #21 (the inactive landfill) and AOC G (the chemical sewer).

III. Brief Outline of Issues Leading to an EI of NO or IN

A. CA 725 - Soil and groundwater contamination are known to exist at the site however, air and surface water do not appear to be impacted. The main constituents of concern across the site include volatile organic compounds, semi-volatile organic compounds, and metals. Soil contamination is present downgradient from the wastewater treatment system, adjacent to sections of the chemical sewer network, and presumably beneath the inactive landfill. Groundwater contamination is present downgradient of the wastewater treatment system, sections of the chemical sewer network, and the inactive landfill. Concentrations of volatile and semi-volatile organics in groundwater in the shallow, saprolite aquifer and in deeper bedrock wells are increasing. A groundwater recovery system has been installed and operating since 1988 but does not exert sufficient hydraulic control over the contaminant plume. Milliken has not delineated the nature and extent of groundwater contamination. The plume has possibly migrated off site and into recovery wells operated by a neighboring industry.

B. CA 750 - Releases near the wastewater treatment system, the chemical sewer network, the inactive landfill, and/or the aboveground tank farm have contaminated groundwater at concentrations above relevant action levels. Groundwater contamination may be migrating off site. A groundwater recovery system that was installed has not been effective in capturing the plume.

IV. Discussion of What is Needed to Get to YES

A. CA 725 - Additional investigation is needed to adequately characterize subsurface conditions at the site. The Department has issued comments on the RFI Workplan and anticipates a conditional approval by March 2001. At the present time, stabilization measures are being conducted to remove some source material. In order to control exposure to contaminated soils, delineation and subsequent excavation needs to be performed, or restricted access needs to be placed upon the delineated areas. To control contaminated groundwater migration, the recovery system needs to be reevaluated and reengineered to provide adequate hydraulic control of the plume. However, prior to this occurring, the RFI Workplan needs to be implemented and the resulting data analyzed in order to better characterize the site. This is anticipated to occur during the 2000 - 2001 time frame. Controls for soil and groundwater could then be implemented by 2002.

B. CA 750 - After the RFI is completed during 2000 - 2001, and a better understanding is gained of the sources and the fate and transport of contamination, interim measures to remove the sources can be implemented and the groundwater recovery system can be upgraded to provide plume control. This is anticipated to occur during 2002.

EI Interim Milestone Schedule

Milliken Chemical – Dewey Plant				
Activity	**RCRIS CA Event Code**	**Scheduled Date**	**EI Code**	**Remarks**
Stabilization Measures Implemented	CA600	2/25/00	725/750	AOC G: Chemical Sewer Interim measures to remove source for health hazard and GW contamination
Interim Measures Report Received	CA640	2/30/01	750	SWMU 21: Inactive Landfill Removal of landfill as possible source of GW contamination
RFI Work Plan Approved	CA150	3/30/01	725/750	Site-wide characterization of soil and GW contamination
Interim Measures Report Received	CA640	9/30/01	725/750	AOC G: Chemical Sewer Results of soil testing during removal to determine health hazard and threat of contamination to GW
RFI Report Received	CA190	9/30/01	725/750	Site-wide characterization of soil and GW contamination

Stabilization Measures Implemented	CA600	12/31/01	750	Site-wide soil and GW controls put in place
Current Human Exposures under Control	CA725	3/31/02	725	Revised EI Memo
Release to GW Controlled Determination	CA750	3/31/02	750	Revised EI Memo

V. Level of Confidence in Meeting EI's and Major Issues

The Department has a medium level of confidence that the facility can meet the EI schedule. Because of the complexity of the hydrogeology in the area (saprolite and fractured bedrock aquifer), a thorough understanding of the subsurface is necessary for effective corrective action to occur. This will involve a significant investigative effort and its success depends upon the facility's cooperation and the quality of work performed by the facility's contractor.

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

November 13, 2001

(10)

Mr. Michael Collins
Milliken Chemical – Dewey Plant
P.O. Box 817
Inman, SC 29349

RE: Milliken Chemical – Dewey Plant
SCD 069 314 045

Updated Environmental Indicators (EI) Schedule

Dear Mr. Collins,

This letter is confirmation of our phone conversation of November 9, 2001 as to the updating of the EI schedule for the Milliken Dewey Plant. Updated completion dates were discussed and agreed upon as targets for document submittal. The new schedule is presented in the following table.

Interim Measures Report Received	CA640	12/31/01	725 750	AOC G: Chemical Sewer
RFI Report Received	CA190	1/31/02	725.750	Site-wide characterization of soil and GW contamination
Stabilization Measures Implemented	CA600	3/31/02	750	Site-wide soil and GW controls put in place
Current Human Exposures under Control	CA725	3/31/02	725	Revised EI Memo
Release to GW Controlled Determination	CA750	3/31/02	750	Revised EI Memo

If you have any questions please contact me at 803/896-4183.

Sincerely,

Stephen Crowell

Stephen Crowell, Environmental Engineer Associate
Corrective Action Engineering Section
Division of Waste Management
Bureau of Land and Waste management

CC: Robert Hodges, Division of Hydrogeology